DRAFT DECISION

Powercor
Distribution Determination
2021 to 2026

Attachment 4
Regulatory depreciation

September 2020

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's draft decision on the distribution determination that will apply to Powercor for the 2021–26 regulatory control period. It should be read with all other parts of the draft decision.

The draft decision includes the following attachments:

Overview

Attachment 1 – Annual revenue requirement

Attachment 2 – Regulatory asset base

Attachment 3 – Rate of return

Attachment 4 – Regulatory depreciation

Attachment 5 – Capital expenditure

Attachment 6 – Operating expenditure

Attachment 7 – Corporate income tax

Attachment 8 – Efficiency benefit sharing scheme

Attachment 9 – Capital expenditure sharing scheme

Attachment 10 – Service target performance incentive scheme

Attachment 11 – Demand management incentive scheme and demand management innovation allowance mechanism

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Attachment 13 – Classification of services

Attachment 14 – Control mechanisms

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Attachment 17 – Negotiated services framework and criteria

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Contents

4 Regulatory depreciation

Depreciation is the amount provided so capital investors recover their investment over the economic life of the asset (return of capital). In deciding whether to approve the depreciation schedules submitted by Powercor, we make determinations on the indexation of the regulatory asset base (RAB) and depreciation building blocks for Powercor's 2021–26 regulatory control period.[1] The regulatory depreciation amount is the net total of the straight-line depreciation less the indexation of the RAB.

This attachment sets out our draft decision on Powercor's regulatory depreciation amount. It also presents our draft decision on the proposed depreciation schedules, including an assessment of the proposed standard asset lives used for forecasting depreciation.

4.1 Draft decision

We determine a regulatory depreciation amount of $710.6 million ($ nominal) for Powercor for the 2021–26 regulatory control period. Powercor proposed a regulatory depreciation amount of $759.9 million ($ nominal).[2] Our decision represents a decrease of $49.3 million or 6.5 per cent on the proposed amount.

For our draft decision on Powercor's regulatory depreciation:

- We accept Powercor's proposed asset classes, its straight-line depreciation method, and the standard asset lives (with the exception of the 'Equity raising costs' asset class) used to calculate the regulatory depreciation amount.
- We accept the continuation of Powercor's year-by-year tracking approach to calculate straight-line depreciation of existing assets. However, we identified and corrected a few minor errors in Powercor's application of the year-by-year tracking approach in its depreciation model.
- We accept the inclusion of the new asset class of 'Accelerated depreciation assets' proposed by Powercor. However, we do not accept the amount of the existing assets reallocated into this asset class from the 'Distribution system assets' class proposed by Powercor. This is because we have reduced the asset replacement volumes, scrapping rates and unit rates used in Powercor's calculations. We also corrected a minor error in Powercor's separate accelerated depreciation model.[3]
- We made determinations on other components of Powercor's proposal which affect the forecast regulatory depreciation—for example, the opening RAB at 1 July 2021 (attachment 2), expected inflation (attachment 3), and forecast capital expenditure

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1 (NER, cll. 6.12.1, 6.4.3.

2 Powercor, *PAL MOD 10.02 - PTRM 2021-26*, January 2020 (Updated 1 June 2020).

3 Powercor, *PAL MOD 10.07 - Accelerated depreciation - Jan2020 - Public*, 31 January 2020.

(capex) (attachment 5) including its effect on the projected RAB over the 2021–26 regulatory control period.[4]

Table 4.1 sets out our draft decision on the annual regulatory depreciation amount for Powercor's 2021–26 regulatory control period.

Table 4.1 AER's draft decision on Powercor's forecast depreciation for the 2021–26 regulatory control period ($ million, nominal)

	2021–22	2022–23	2023–24	2024–25	2025–26	Total
Straight-line depreciation	227.5	244.5	262.4	274.9	289.8	1299.1
Less: inflation indexation on opening RAB	106.8	112.1	119.0	123.6	127.1	588.5
Regulatory depreciation	**120.7**	**132.5**	**143.4**	**151.3**	**162.7**	**710.6**

Source: AER analysis.

4.2 Powercor's proposal

For the 2021–26 regulatory control period, Powercor proposed total forecast regulatory depreciation of $759.9 million ($ nominal). To calculate the depreciation amount, Powercor proposed to use:[5]

- the straight-line depreciation method employed in the AER's post-tax revenue model (PTRM)
- the closing RAB value at 30 June 2021 derived from the AER's roll forward model (RFM)
- proposed forecast capex for the 2021–26 regulatory control period
- an expected inflation rate of 2.4 per cent per annum for the 2021–26 regulatory control period
- the year-by-year tracking depreciation model, which implements the straight-line method to calculate the forecast depreciation (over the 2021–26 regulatory control period) of the opening RAB at 1 July 2021
- the asset classes and standard asset lives for depreciating new assets associated with forecast capex for the 2021–26 regulatory control period (except for the 'Equity raising costs' asset class), which are consistent with those approved in the 2016–

[4] Capex enters the RAB net of forecast disposals and capital contributions. It includes equity raising costs (where relevant) and the half-year WACC to account for the timing assumptions in the PTRM. Our draft decision on the RAB (attachment 2) also reflects our updates to the WACC for the 2021–26 regulatory control period.

[5] Powercor, 2021–26 Regulatory Proposal – Supporting information – PAL MOD 10.02 - PTRM 2021–26, January 2020 (Updated 1 June 2020); Powercor, 2021–26 Regulatory Proposal – Supporting information – PAL MOD 10.01 – RFM 5.5 year 2016–21, January 2020.

20 distribution determination. In addition, Powercor proposed two new asset classes:

- 'Accelerated depreciation assets'—with a remaining asset life of 5 years
- 'In-house software'—with a standard asset life of 5 years—that was created for straight-line tax depreciation purposes arising from the AER's 2018 tax review (see attachment 7).

Table 4.2 sets out Powercor's proposed depreciation amount for the 2021–26 regulatory control period.

Table 4.2 Powercor's proposed forecast depreciation for the 2021–26 regulatory control period ($ million, nominal)

	2021–22	2022–23	2023–24	2024–25	2025–26	Total
Straight-line depreciation	241.3	261.7	284.3	295.2	312.6	1395.1
Less: inflation indexation on opening RAB	109.8	119.5	128.7	135.7	141.6	635.2
Regulatory depreciation	**131.6**	**142.2**	**155.6**	**159.5**	**171.0**	**759.9**

Source: Powercor, *PAL MOD 10.02 - PTRM 2021–26*, January 2020 (Updated 1 June 2020).

4.3 Assessment approach

We determine the regulatory depreciation amount using the PTRM as a part of a service provider's annual revenue requirement.[6] Where the year-by-year tracking approach has been adopted, a separate depreciation model is also used for existing assets and feeds into the PTRM. The calculation of depreciation in each year is governed by the value of assets included in the RAB at the beginning of the regulatory year, and by the depreciation schedules.[7]

Our standard approach to calculating depreciation is to employ the straight-line method set out in the PTRM. We consider the straight-line method satisfies the National Electricity Rules (NER) requirements in clause 6.5.5(b) as it provides an expenditure profile that reflects the nature of assets over their economic life.[8]

Once the method is set, regulatory practice has been to assign a standard asset life to each category of assets that represents the economic or technical life of the asset or asset class. We must consider whether the proposed depreciation schedules conform to the following key requirements:

6 NER, cll. 6.4.3(a)(3) and (b)(3).
7 NER, cl. 6.5.5(a).
8 NER, cl. 6.5.5(b)(1).

- the schedules depreciate using a profile that reflects the nature of the assets or category of assets over the economic life of that asset or category of assets[9]
- the sum of the real value of the depreciation that is attributable to any asset or category of assets must be equivalent to the value at which that asset or category of assets was first included in the RAB for the relevant distribution system.[10]

If a service provider's building block proposal does not comply with the above requirements, then we must determine the depreciation schedules for the purpose of calculating the depreciation for each regulatory year.[11]

The regulatory depreciation amount is an output of the PTRM. We therefore assessed Powercor's proposed regulatory depreciation amount by analysing the proposed inputs to the PTRM for calculating that amount. The key inputs include:

- the opening RAB at 1 July 2021
- the forecast net capex in the 2021–26 regulatory control period[12]
- the expected inflation rate for the above period
- the standard asset life for each asset class—used for calculating the depreciation of new assets associated with forecast net capex in the above period
- the depreciation associated with the opening RAB as at 1 July 2021—calculated in a separate year-by-year tracking depreciation model.

Our draft decision on Powercor's regulatory depreciation amount reflects our determinations on the opening RAB at 1 July 2021, expected inflation, and forecast capex (the first three building block components in the above list).[13] Our determinations on these components of the service provider's proposal are discussed in attachments 2, 3 and 5 respectively.

In this attachment, we assess Powercor's proposed standard asset lives against:

- the approved standard asset lives in the distribution determination for the 2015–20 regulatory control period
- the standard asset lives of comparable asset classes approved in our recent distribution determinations for other service providers
- the appropriate economic lives of the assets.

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9 NER, cl. 6.5.5(b)(1).

10 NER, cl. 6.5.5(b)(2).

11 NER, cl. 6.5.5(a)(2)(ii).

12 Capex enters the RAB net of forecast disposals and capital contributions. It includes equity raising costs (where relevant) and the half-year WACC to account for the timing assumptions in the PTRM. Our draft decision on the RAB (attachment 2) also reflects our updates to the WACC for the 2021–26 regulatory control period.

13 Our final decision will update the opening RAB as at 1 July 2021 for revised estimates of actual capex and inflation.

Our standard approach for depreciating a service provider's existing assets in the PTRM uses the remaining asset lives at the start of a regulatory control period as determined in the RFM. However, for the 2016–20 regulatory control period, Powercor adopted an approach where (in addition to grouping assets by type via asset classes) it tracks the asset classes on a year-by-year basis to implement straight-line depreciation—known as the year-by-year tracking approach. In our distribution determination for Powercor's 2016–20 regulatory control period, we approved the year-by-year tracking approach and determined that it met the depreciation provisions of the NER. We reaffirm this decision for the 2021–26, as discussed in section 4.4.1. Powercor's proposal also included accelerated depreciation of assets which have a residual value and are being replaced. Our assessment approach for accelerated depreciation aligns with our general approach. One key consideration is whether the accelerated depreciation produces depreciation schedules that reflect the economic life of the affected assets, as set out in clause 6.5.5(b)(1) of the NER. Our assessment is also conceptually linked to the assessment of the proposed replacement capex against the relevant capex criteria in the NER. As described in attachment 5, our capex assessment is at a high level and we do not determine the specific projects that Powercor must undertake. Nonetheless, the underlying principle remains whether it is efficient and prudent to undertake the capex to replace the assets. If so justified, this suggests that it might no longer be economically efficient to use the replaced assets to provide standard control services and the depreciation schedules associated with the residual value of the replaced assets could possibly be accelerated to reflect their reduced remaining economic life.

4.3.1 Interrelationships

The regulatory depreciation amount is a building block component of the annual revenue requirement.[14] Higher (or quicker) depreciation leads to higher revenues over the regulatory control period. It also causes the RAB to reduce more quickly (excluding the impact of further capex). This reduces the return on capital amount, although this impact is usually smaller than the increased depreciation amount in the short to medium term.[15]

Ultimately, however, a service provider can only recover the capex that it incurred on assets once. The depreciation amount reflects how quickly the RAB is being recovered, and it is based on the remaining and standard asset lives used in the depreciation calculation. It also depends on the level of the opening RAB and the forecast capex, with any increase in these factors also increasing the depreciation amount.

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[14] The PTRM distinguishes between straight-line depreciation and regulatory depreciation, the difference being that regulatory depreciation is the straight-line depreciation minus the indexation adjustment.

[15] This is generally the case because the reduction in the RAB amount feeds into the higher depreciation building block, whereas the reduced return on capital building block is proportionate to the lower RAB multiplied by the WACC.

The RAB has to be maintained in real terms, meaning the RAB must be indexed for expected inflation.[16] The return on capital building block has to be calculated using a nominal rate of return (WACC) applied to the opening RAB.[17] As noted in attachment 1, the total annual revenue requirement is calculated by adding up the return on capital, depreciation, operating expenditure, tax and revenue adjustments building blocks. Because inflation on the RAB is accounted for in both the return on capital—based on a nominal rate—and the depreciation calculations—based on an indexed RAB—an adjustment must be made to the revenue requirement to prevent compensating twice for inflation.

To avoid this double compensation, we make an adjustment by subtracting the annual indexation gain on the RAB from the calculation of total revenue.[18] Our standard approach is to subtract the indexation of the opening RAB—the opening RAB multiplied by the expected inflation for the year—from the RAB depreciation. The net result of this calculation is referred to as regulatory depreciation.[19] Regulatory depreciation is the amount used in the building block calculation of total revenue to ensure that the revenue equation is consistent with the use of a RAB, which is indexed for inflation annually.

This approach produces the same total revenue requirement and RAB as if a real rate of return had been used in combination with an indexed RAB. Under an alternative approach where a nominal rate of return was used in combination with an un-indexed (historical cost) RAB, no adjustment to the depreciation calculation of total revenue would be required. This alternative approach produces a different time path of total revenue compared to our standard approach. In particular, overall revenues would be higher early in the asset's life (as a result of more depreciation being returned to the service provider) and lower in the future—producing a steeper downward sloping profile of total revenue.[20] Under both approaches, the total revenues being recovered are in present value neutral terms—that is, returning the initial cost of the RAB.

Figure 4.1 shows the recovery of revenue under both approaches using a simplified example.[21] Indexation of the RAB and the offsetting adjustment made to depreciation results in smoother revenue recovery profile over the life of an asset than if the RAB

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16 NER, cl. 6.5.1(e)(3).

17 AER, *Rate of return instrument*, cl. 1, cl. 3(a), cl. 36(c), December 2018.

18 NER, cl. 6.4.3(b)(1)(ii).

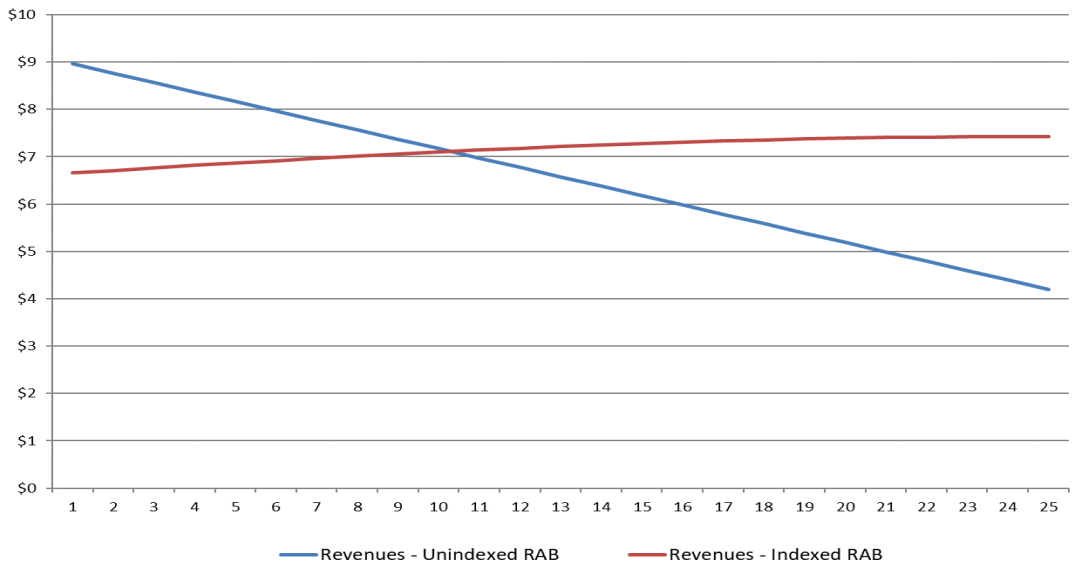
19 If the asset lives are extremely long, such that the RAB depreciation rate is lower than the inflation rate, then negative regulatory depreciation can emerge. The indexation adjustment is greater than the RAB depreciation in such circumstances.

20 A change of approach from an indexed RAB to an un-indexed RAB would result in an initial step change increase in revenues to preserve NPV neutrality.

21 The example is based on the initial cost of an asset of $100, a standard economic life of 25 years, a real WACC of 2.5%, expected inflation of 2.4% and nominal WACC of 4.96%. Other building block components such as opex, tax and capex are ignored for simplicity as they would affect both approaches equally.

was un-indexed. The indexation of the RAB also reduces price shocks when the asset is replaced at the end of its life.[22]

Figure 4.1 Revenue path example – indexed vs un-indexed RAB ($ nominal)



Source: AER analysis.

Figure 2.1 (in attachment 2) shows the relative size of the inflation and straight-line depreciation and their impact on the RAB based on Powercor's proposal. A 10 per cent increase in the straight-line depreciation causes revenues to increase by about 3.9 per cent.[23]

4.4 Reasons for draft decision

We accept Powercor's proposed straight-line depreciation method for calculating the regulatory depreciation amount as set out in the PTRM and the year-by-year tracking approach to implement this method, subject to correcting some minor errors. We also accept the proposed asset classes and standard asset lives (with the exception of the 'Equity raising costs' asset class).

However, we reduced Powercor's proposed forecast regulatory depreciation by $49.3 million (or 6.5 per cent) to $710.6 million ($ nominal). This amendment reflects our corrections to the depreciation tracking model proposed by Powercor (section

[22] In year 26 the revenues in the example for the un-indexed approach would jump from about $4 to $9, assuming the asset is replaced by an asset of roughly similar replacement cost as the initial asset. In contrast, in the same circumstances, the indexed approach would see revenues stay at roughly $7.

[23] We have analysed the sensitivity of straight-line depreciation relative to total revenue based on input data provided in Powercor's proposal PTRM.

4.4.1) and a reduction to its proposed accelerated depreciation of replaced assets (section 4.4.2). It also reflects our determinations regarding other components of Powercor's regulatory proposal that affect the forecast regulatory depreciation—the opening RAB at 1 July 2021 (attachment 2), expected inflation over the 2021–26 regulatory control period (attachment 3) and forecast capital expenditure (attachment 5) including its effect on the projected RAB over the 2021–26 regulatory control period.[24]

Our assessment of Powercor's continuation of the year-by-year tracking depreciation approach, proposed accelerated depreciation, and its proposed standard asset lives are discussed in turn in the following subsections.

4.4.1 Year-by-year tracking approach

From the beginning of the 2016–20 regulatory control period, Powercor has implemented the straight-line method for the calculation of its forecast regulatory depreciation using the year-by-year tracking approach. We accepted this approach in our 2016–20 distribution determination. Powercor's proposal is to continue using the year-by-year tracking approach for calculating depreciation of its existing assets.

We accept that Powercor 's proposed year-by-year tracking approach meets the requirements of the NER in that it will result in depreciation schedules that:

- reflect the nature of the assets and their economic life[25]
- ensure that total depreciation (in real terms) equals the initial value of the assets[26]
- allows the economic lives of existing assets to be consistent with those determined on a prospective basis in our 2016–2020 distribution determination.[27]

Powercor prepared a separate depreciation model to implement year-by-year tracking.[28] It builds on the depreciation model used for the 2016–20 distribution determination and is adjusted to account for the additional half year in 2021.[29] We have reviewed Powercor's year-by-year tracking depreciation model and updated it with the latest CPI and WACC estimates for 2021 in the depreciation model, which were not available at the time of the proposal.

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24 Capex enters the RAB net of forecast disposals and capital contributions. It includes equity raising costs (where relevant) and the half-year WACC to account for the timing assumptions in the PTRM. Our draft decision on the RAB (attachment 2) also reflects our updates to the WACC for the 2021–26 regulatory control period.

25 NER, cl. 6.5.5(b)(1).

26 NER, cl. 6.5.5(b)(2).

27 NER, cl. 6.5.5(b)(3).

28 Powercor, 2021–26 Regulatory Proposal – Supporting information – PAL MOD 10.03 - Depreciation 2021–26, January 2020.

29 For the 2026 reset, Powercor will be required to use the AER's recently developed depreciation tracking model published with the RFM (version 3). Due to timing issues, that was not possible for this reset.

We also corrected some minor errors in the depreciation model, which Powercor agreed with.[30] In particular, we have made the following adjustments:

- RAB and capex adjustments – these adjustments were initially summed together then depreciated using standard lives. We have separated them out and depreciated the RAB adjustment using remaining asset lives and capex adjustments using standard asset lives.
- 2015 capex – we have made amendments such that the actual 2015 capex (rather than estimated 2015 capex) is depreciated as a line item for each asset class and the 2015 capex true up adjustment reflects the real return on the difference between actual and estimated capex. This approach is consistent with our final decision for the TasNetworks 2019–24 distribution determination and our draft decision for the SA Power Networks 2020–25 distribution determination.[31]

Overall, the materiality of these errors is modest resulting in a 0.3 per cent decrease to nominal straight-line depreciation. Changes to the accelerated depreciation amount have a more significant impact, as discussed in the next subsection.

4.4.2 Accelerated depreciation

Powercor proposed accelerated depreciation of $74.5 million for its existing assets, comprising $39.0 million for assets associated with rapid earth fault current limiters (REFCLs) and $35.4 million for other assets. This proposal adds 1.8 per cent to Powercor's total revenue for the 2021–26 regulatory control period.

The assets associated with REFCLs comprise:

- $13.5 million for surge arrestors
- $13.0 million for automatic circuit reclosers (ACRs)
- $12.5 million for underground cable.

The remaining assets comprise:

- $5.5 million for PVC grey services
- $2.1 million for high voltage aerial bundled cable in low bushfire risk areas
- $6.7 million for 3G to 5G upgrade
- $21.1 million for solar enablement distribution transformers.

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30 Powercor, *Response to AER information request #028*, 25 May 2020.

31 AER, *Final decision – TasNetworks Distribution Determination 2019 to 2024 – Attachment 4 – Regulatory depreciation*, April 2019, p. 7; AER, *SA Power Networks Distribution Determination 2020 to 2025 – Attachment 4 – Regulatory depreciation,* October 2019, p. 13.

The assets in question have historically been included in the broad asset class of 'Distribution system assets' with a much longer remaining asset life.[32] Powercor submitted that these assets will be replaced and become redundant over the 2021–26 regulatory control period, and so they should be depreciated over that period. We consider the proposal is consistent with the NER for these assets to be separately depreciated so as to better reflect their economic life. Where we have assessed that it is efficient and prudent to undertake the capex to replace the assets, this suggests that it might no longer be economically efficient to use the replaced assets. Therefore, the depreciation schedules associated with the residual value of the replaced assets should be accelerated to reflect their reduced remaining economic life.

Powercor's proposed PTRM contains a new asset class of 'Accelerated depreciation assets' for this purpose. The proposed accelerated depreciation is calculated in a separate accelerated depreciation model.[33] We accept the proposed remaining asset life of 5 years for accelerated depreciation purposes, as it reflects the expected economic life of these assets. However, we made a minor amendment to Powercor's proposed accelerated depreciation model relating to the residual value calculation for underground cable. Powercor provided clarification to this in response to our information request.[34]

Powercor has estimated the written down value of these assets using current or recent replacement costs multiplied by the replacement volume and then prorating the amount by its calculated weighted average remaining life of the assets relative to the standard life of the broad asset class of 'Distribution system assets'. Although no actual written down values are available, we consider Powercor's approach is reasonable and consistent with our approach in previous decisions.

We have reviewed and accept the general modelling approach and calculations made by Powercor, but require adjustment to aspects of the calculations for the various groups of assets. In total, these adjustments reduce the amount of accelerated depreciation by $45.0 million in the 2021–26 regulatory control period to give a total accelerated depreciation amount of $29.5 million. For each group of assets we have amended some or all of the relevant unit rates, replacement volumes and remaining lives used to calculate the residual values. More detailed discussion of the associated capex programs is set out in attachment 5. We note that Powercor's calculations for the residual values for some of the REFCL assets—ACRs, surge arrestors, and underground cable—reference volumes and unit rates associated with its proposed contingent project tranche 3. We have amended these inputs where relevant to reflect our approved contingent project tranche 3 cost model.[35]

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32 The remaining life for this asset class in 2010 when depreciation started to be tracked (for the 2016−20 reset) was 25.6 years.

33 Powercor, 2021–26 Regulatory Proposal – Supporting information – PAL MOD 10.07 - Accelerated depreciation, 31 January 2020.

34 Powercor, *Response to information request #032*, 5 June 2020.

35 AER, *Powercor review of adjustment to REFCL T3 CPA - REFCL3_MOD.01 - Expenditure build-up model (tranche three) ADJUSTED FOR DECISION v2.2*, email sent 15 Novembers 2019.

Excluding distribution transformers and ACRs, our amendments reduce the amount of accelerated depreciation by $14.7 million in the 2021–26 regulatory control period to give an accelerated depreciation amount of $25.7 million. This is shown in Table 4.3.

Table 4.3 AER's draft decision residual values for accelerated depreciation, excluding distribution transformers and ACRs, over the 2021–26 regulatory control period ($ million, 2020−21)

Asset group	Remaining life (years)	Volume	Unit rate ($/unit)	Residual value ($ million)[a]
PVC grey services (dog-bones)	19.0[b]	0 km	84,196.7	0.0
Replacing HV ABC in the LBRA	25.5	9.6 km	437,035.4	2.1
3G to 5G upgrade (control boxes)	43.8[c]	1652.5 units	3693.1	5.2
T3 REFCL: surge arrestors: 1 phase	31.9	2004 units	1516.6	1.9
T3 REFCL: surge arrestors: 3 phase	31.9	2971 units	1736.6	3.2
WPD & GHP: surge arrestors: 1 phase	31.9	925 units	1278.9	0.7
WPD & GHP: surge arrestors: 3 phase	31.9	1925 units	1475.3	1.8
T1-T3 REFCL: underground cable	30.9[d]	38.1 km	466,226.0	10.8
Total				**25.7**

a) Residual value is equal to: volume × unit rate × remaining life ÷ standard life

b) We have amended the remaining life for PVC grey services based on an average age of 32 years. This is based on an assumed installation year of 1989 which was submitted by Powercor in its response to information request IR#015, received 30 April 2020.

c) We have amended the remaining life for 3G to 5G upgrade (control boxes) based on an average age of 7.2 years at 2021. This is based on age profile information Powercor provided in response to information request #015, received 30 April 2020. The age profile data reflected an average age of 5.2 years at 2019.

d) Our amended remaining life for underground cable is a weighted average based on the replacement volumes (rather than the installed volumes) contained in the accelerated depreciation model.

Redeployment of distribution transformers and ACRs

For the distribution transformers and ACRs we have made further reductions to the replacement volumes to calculate the appropriate accelerated depreciation. This is because for both the distribution transformers and the ACRs we consider a large proportion of these replaced assets can be redeployed elsewhere on the network.

Our amendments reduce the accelerated depreciation of these assets by $30.3 million in the 2021–26 regulatory control period to give an accelerated depreciation amount of $3.8 million. This is shown in Table 4.4.

Table 4.4 AER's draft decision residual values for accelerated depreciation of distribution transformers and ACRs over the 2021–26 regulatory control period ($ million, 2020−21)

Asset group	Remaining life (years)	Volume	Unit rate ($/unit)	Residual value ($ million)[a]
Solar enablement: distribution transformers	25.5	75.5 units	68,021.8	2.6
T1-T3 & WPD & GHP REFCL: ACRs	42.8	22 units	64,737.3	1.2
Total				**3.8**

a) Residual value is equal to: volume × unit rate × remaining life ÷ standard life.

Distribution transformers for solar enablement

Powercor proposed $21.1 million of accelerated depreciation over 5 years for existing distribution transformers. Powercor stated that the existing installed transformers do not have a suitable tapping range.

We note that the solar enablement capex assessment reduced the approved replacement volume of transformers by 53 per cent.[36] We consider that the majority of the transformers approved for replacement should be able to be redeployed elsewhere in the network.

Powercor's proposal calculated the residual value for these assets based on an average age of 25.5 years. In response to an information request, Powercor stated that based on 2019 rates, 91 per cent of these transformers were expected to be scrapped.[37] We consider 25 per cent a more appropriate rate for scrapping for transformers less than 40 years of age that are being mostly removed for tapping range reasons rather than condition reasons. In this case as the increased rate of transformer removal is associated with PV export, we would expect that this will be associated with a larger number of transformers from urban areas that are more likely to be in serviceable condition being removed. As a result, we consider the scrapping rate should be lower than in the circumstances where transformers are removed from service due to their condition (typically these would be older units).

For this draft decision, we apply a 25 per cent scrapping factor to the replacement volume to calculate the residual value for accelerated depreciation. We therefore adopt a volume of 75.5 distribution transformers for accelerated depreciation purposes. We would require further evidence from Powercor that the transformers proposed to be removed from the network and scrapped are not suitable for redeployment.

We have also reduced the unit rate to $68,022 per unit from $66,149 per unit.

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36 See Attachment 5.

37 Powercor, *Response to Information Request #055*, 10 July 2020.

Our amendments therefore reduce the accelerated depreciation amount for these assets to $2.6 million.

ACRs

Powercor proposed $13.0 million of accelerated depreciation over 3 years for existing ACRs. Powercor's proposal reflected a forecast replacement of 245 existing ACRs with smart ACRs as part of its Mitigating REFCL Reliability Impacts program.[38] Powercor informed us that the existing ACRs are predominantly N24 and N27 types but that there are also 22 RVE and VWVE types.

We note that the forecast capex for the smart ACRs installation was accepted as detailed in attachment 5.

We therefore accept accelerated depreciation for the 22 RVE and VWVE types but not for the other ACRs. This is because we consider that based on the information provided, the N24 and N27 ACRs should be able to be redeployed (in non-REFCL areas) in the network or placed into stock for future use.

Powercor provided information about the types and ages of the ACRs being removed. More than two-thirds of the currently installed ACRs forecast to be replaced were installed after 2010 and so are less than 10 years old.[39] We consider that the number of operations rather than age is a more appropriate indicator of the asset condition and unless the device is installed in a problematic area (such as high lightning strike areas), a typical life expectancy would be 40 years.[40] In our view, a unit of less than 20 years of age is therefore likely to be in reasonable condition.

Powercor also stated that accelerated depreciation is appropriate for ACRs because only the hardware component may be repurposed in limited cases and not the labour costs. Powercor estimated that labour comprises over half the installation cost. However, we consider that such a high labour component would be unusual for the installation of this type of asset.

For this draft decision, we therefore accept accelerated depreciation for 22 ACRs. We have also amended the unit rate to $64,737 per unit from $64,739 per unit.

Our amendments therefore reduce the accelerated depreciation amount of these assets to $1.2 million.

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38 Powercor updated this proposed volume to 267 in correspondence on 10 July 2020. The amended volume reflects the inclusion volumes to end June 2020, the removal of the volumes for the Geelong and Corio Zone substations and the inclusion of the volume for Gheringhap substation: see Powercor, *Response to IR055*, email received 10 July 2020.

39 Based on the 'Other ACRs' worksheet in Powercor's accelerated depreciation model.

40 ACR units typically have a counter which shows the number of operations.

4.4.3 Standard asset lives

We accept Powercor's proposed standard asset lives, with the exception of the standard asset life for the 'Equity raising costs' asset class. We have calculated the standard asset life of equity raising costs by taking the weighted average of the standard asset lives of total forecast capex for each asset class over the 2021–26 regulatory control period. We also accept the introduction of one new asset class arising from the 2018 tax review (attachment 7).

Powercor proposed the same standard asset lives for its existing asset classes in respect of the forecast capex to be incurred in the 2021–26 regulatory control period, except for the 'Equity raising costs' asset class. We accept the unchanged asset lives as they are consistent with those approved for the 2016–20 regulatory control period and are largely comparable with the standard asset lives approved in our recent determinations for other distributors.[41]

The standard asset life for the 'Equity raising costs' asset class needs to be reviewed each regulatory control period. We consider the standard asset life for this asset class should reflect the lives of the mix of assets making up the approved forecast net capex, because the equity raising cost benchmark is associated with that forecast.[42] Powercor proposed that a fixed standard asset life of 42 years should be used for this reset and future regulatory control periods as well, so as to streamline and avoid administrative issues with the depreciation calculations when using the year-by-year tracking approach.[43] We consider that the weighted average method to calculate the standard life for the 'Equity raising costs' asset class should continue. It is the most accurate approach and does not create any administrative issues. However, for this draft decision have determined zero equity raising costs, compared to the $2.0 million proposed by Powercor. Accordingly, no standard asset life is determined for equity raising costs.

In order to implement the changes arising from the tax review, Powercor reallocated a proportion of its forecast capex related to IT assets for the 2021–26 regulatory control period into a new asset class for 'In-house software'. Discussed further in attachment 7, the tax review acknowledged different methods of calculation of tax depreciation for different asset classes, which resulted in the addition of this asset class to the PTRM and a reallocation of forecast capex to this asset class. The proposed standard asset life for the 'In-house software' asset class is consistent with

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41 AER, *Final decision: TasNetworks distribution determination 2019 to 2024*, *attachment 4*, April 2019, pp. 9–10; AER, *Final decision: Evoenergy distribution determination 2019 to 2024*, *attachment 4*, April 2019, p. 9; AER, *Final decision: Essential Energy distribution determination 2019 to 2024*, *attachment 4*, April 2019, p. 8; AER, *Final decision: Ausgrid distribution determination 2019 to 2024*, *attachment 4*, April 2019, p. 9; AER, *Final decision: Endeavour Energy distribution determination 2019 to 2024*, *attachment 4*, April 2019, p. 10; AER, *Final decision: Power and Water Corporation distribution determination 2019 to 2024*, *attachment 4*, April 2019, pp. 8–9.

42 For this reason, we used forecast net capex as the weights to establish the weighted average standard asset life for amortising equity raising costs.

43 Powercor, *Response to AER information request #007*, 14 April, pp. 3-4.

the life determined for this asset class in recent AER decisions.[44] Therefore, we accept assigning a standard asset life of 5 years for this asset class.

The Victorian Community Organisations submitted that the Victorian distributors apply different depreciation schedules with asset lives that also differ from replacement expenditure (repex) assessments. The submission advocated applying a standard depreciation schedule across the Victorian distributors.[45] We encourage consistency in asset lives for similar assets. However, differences can appear to emerge when assets are aggregated into asset classes. The depreciation schedules have evolved over time. In certain aspects they are a carryover from the previous jurisdictional arrangements in Victoria. In this regard, a key feature of the Victorian distributors' depreciation schedules is that they are based on relatively few asset classes. This means that there can be a greater variety of assets in an asset class with otherwise similar names. Where this is the case, differences in the asset lives stem purely from the mix of assets that are expected to make up that asset class. For example, the 'Non-network general assets – IT' asset class may encompass short lived standard IT assets (e.g. office computers and general word processing software), as well as more specialised IT assets (e.g. data servers and storage system). We consider it is reasonable that these assets may have different useful lives. Similarly, the repex assessments look at assets in more detail than the broader depreciation assessment. We consider the depreciation schedules across the Victorian distributors are comparable to each other and to the repex assessment when these differences are recognised. We have also discussed this matter in our previous Victorian distributor decisions.[46]

Table 4.5 sets out our draft decision on Powercor's standard asset lives for the 2021–26 regulatory control period. We are satisfied the approved standard asset lives would lead to a depreciation schedule that reflects the nature of the assets over the economic lives of the asset classes. Further, the sum of the real value of the depreciation attributable to the assets is equivalent to the value at which the assets were first included in the RAB for Powercor.[47]

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44 AER, *Energex - Final decision - PTRM*, May 2020; AER, *Ergon Energy - Final decision - PTRM*, May 2020; AER, *SA Power Networks - Final decision - PTRM*, May 2020.

45 VCO, *2021–26 Victorian EDPR: Joint submission from Victorian community organisations – summary document*, May 2020, p. 11.

46 See for example: AER, *Final Decision: AusNet Services distribution determination 2016 to 2020, Attachment 5 – Regulatory depreciation*, May 2016, pp. 9−10.

47 NER, cll. 6.5.5(b)(1)–(2).

Table 4.5 AER's draft decision on Powercor's standard asset lives for the 2021–26 regulatory control period (years)

Asset class	Standard asset life
Subtransmission	50.0
Distribution system assets	51.0
SCADA/Network control	13.0
Non-network general assets - IT	6.0
Non-network general assets - other	15.0
Land	n/a
In-house software[a]	5.0
Equity raising costs	n/a

Source: AER analysis

(a) New asset class created for the PTRM version 4 in order to separate components of IT related assets that must be depreciated using the straight-line method for tax purposes. Refer to attachment 7 (corporate income tax) for more detail.

n/a not applicable. We have not assigned a standard asset life to the 'Land' asset class because the assets allocated to it are non-depreciating assets.

Shortened forms

Shortened form	Extended form
AER	Australian Energy Regulator
ACR	automatic circuit reclosers
capex	Capital expenditure
CPI	consumer price index
NER	National Electricity Rules
PTRM	post-tax revenue model
RAB	regulatory asset base
repex	replacement expenditure
REFCL	rapid earth fault current limiters
RFM	roll forward model
WACC	weighted average cost of capital